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REMARKS

Claims 1-8, 42-47, and 60-64 are pending and under examination. Applicants have hereinabove canceled claims 1-3, 5-8, 43-47, and 60-64, have amended claims 4 and 42, and have added new claims 65-112. Accordingly, after entry of this Amendment, claims 4, 42, and 65-112 will be pending and under examination. Applicants maintain the amendments to the claims raise no issue of new matter. Support for the amendments to claim 4 can be found in the specification as originally filed at, *inter alia*, page 23, line 19 to page 24, line 13. Support for the amendments to claim 42 can be found in the specification as originally filed at, *inter alia*, page 23, line 19 to page 24, line 13; page 39, lines 12-19; and page 40, line 5. Support for new claim 65 can be found in the specification as originally filed at, *inter alia*, page 28, lines 3-7. Support for new claim 66 can be found in the specification as originally filed at, *inter alia*, page 30, lines 1-2. Support for new claim 67 can be found in the specification as originally filed at, *inter alia*, page 30, lines 5-7. Support for new claim 68 can be found in the specification as originally filed at, *inter alia*, page 30, lines 9-11. Support for new claim 69 can be found in the specification as originally filed at, *inter alia*, page 30, lines 15-16. Support for new claim 70 can be found in the specification as originally filed at, *inter alia*, page 30, lines 20-22. Support for new claim 71 can be found in the specification as originally filed at, *inter alia*, page 30, lines 22-24. Support for new claim 72 can be found in the specification as originally filed at, *inter alia*, page 30, lines 28-29. Support for new claim 73 can be found in the specification as originally filed at, *inter alia*, page 28, lines 9-13. Support for new claim 74 can be found in the specification as originally

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filed at, *inter alia*, page 30, lines 1-2. Support for new claim 75 can be found in the specification as originally filed at, *inter alia*, page 30, lines 5-7. Support for new claim 76 can be found in the specification as originally filed at, *inter alia*, page 30, lines 9-11. Support for new claim 77 can be found in the specification as originally filed at, *inter alia*, page 30, lines 15-16. Support for new claim 78 can be found in the specification as originally filed at, *inter alia*, page 30, lines 20-22. Support for new claim 79 can be found in the specification as originally filed at, *inter alia*, page 30, lines 22-24. Support for new claim 80 can be found in the specification as originally filed at, *inter alia*, page 30, lines 28-29. Support for new claim 81 can be found in the specification as originally filed at, *inter alia*, page 31, lines 3-6. Support for new claim 82 can be found in the specification as originally filed at, *inter alia*, page 31, lines 15-17. Support for new claim 83 can be found in the specification as originally filed at, *inter alia*, page 32, lines 5-7. Support for new claim 84 can be found in the specification as originally filed at, *inter alia*, page 32, lines 13-14. Support for new claim 85 can be found in the specification as originally filed at, *inter alia*, page 32, line 18 to page 33, line 1. Support for new claim 86 can be found in the specification as originally filed at, *inter alia*, page 33, lines 13-22. Support for new claim 87 can be found in the specification as originally filed at, *inter alia*, page 33, line 24 to page 34, line 7. Support for new claim 88 can be found in the specification as originally filed at, *inter alia*, page 34, lines 9-18. Support for new claim 89 can be found in the specification as originally filed at, *inter alia*, page 34, line 20 to page 35, line 3. Support for new claim 90 can be found in the specification as originally filed at, *inter alia*, page 35, lines 5-22. Support for

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new claim 91 can be found in the specification as originally filed at, *inter alia*, page 35, line 24 to page 36, line 11. Support for new claim 92 can be found in the specification as originally filed at, *inter alia*, page 36, lines 13-30. Support for new claim 93 can be found in the specification as originally filed at, *inter alia*, page 37, lines 1-18. Support for new claim 94 can be found in the specification as originally filed at, *inter alia*, page 37, lines 20-29. Support for new claim 95 can be found in the specification as originally filed at, *inter alia*, page 38, lines 12-21. Support for new claim 96 can be found in the specification as originally filed at, *inter alia*, page 38, line 23, to page 39, line 10. Support for new claim 97 can be found in the specification as originally filed at, *inter alia*, page 23, line 19 to page 24, line 13; page 45, lines 19-29; and page 40, line 5. Support for new claim 98 can be found in the specification as originally filed at, *inter alia*, page 45, lines 19-29, and page 41, lines 7-10. Support for new claim 99 can be found in the specification as originally filed at, *inter alia*, page 44, lines 9-14. Support for new claim 100 can be found in the specification as originally filed at, *inter alia*, page 43, lines 24-26. Support for new claim 101 can be found in the specification as originally filed at, *inter alia*, page 44, lines 16-18. Support for new claim 102 can be found in the specification as originally filed at, *inter alia*, page 44, lines 18-20. Support for new claim 103 can be found in the specification as originally filed at, *inter alia*, page 44, lines 20-22. Support for new claim 104 can be found in the specification as originally filed at, *inter alia*, page 44, lines 22-24. Support for new claim 105 can be found in the specification as originally filed at, *inter alia*, page 44, lines 24-26. Support for new claim 106 can be found in the specification as originally filed at, *inter alia*, page 44,

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lines 28-29. Support for new claim 107 can be found in the specification as originally filed at, *inter alia*, page 44, line 30 to page 45, line 1. Support for new claim 108 can be found in the specification as originally filed at, *inter alia*, page 45, line 2. Support for new claim 109 can be found in the specification as originally filed at, *inter alia*, page 45, lines 3-4. Support for new claim 110 can be found in the specification as originally filed at, *inter alia*, page 45, line 5. Support for new claim 111 can be found in the specification as originally filed at, *inter alia*, page 47, lines 19-22, and page 40, line 5. Support for new claim 112 can be found in the specification as originally filed at, *inter alia*, page 48, lines 6-7. Accordingly, applicants respectfully request that this Amendment be entered. After entry of this Amendment, claims 4, 42, and 65-112 will be pending and under examination.

Rejection Under 35 U.S.C. §103(a)

In the March 25, 2003 Office Action, the Examiner stated that claims 1-8, 42-47 and 60-64 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fields et al., in view of Legrain et al., Morris et al., Luban et al., and Fritz et al. (U.S. Patent No. 5,922,856). The Examiner stated that claims 1-8, 42-47 and 60-64 of the instant application are directed to a method essentially of determining an inhibitor of HIV RT subunits in a yeast two-hybrid system. The Examiner further stated that Fields et al. teaches a novel genetic system to detect protein-protein interactions in a yeast two-hybrid system. The Examiner stated that Fields et al. does not disclose different vectors in the two-hybrid system; however, Legrain et al. does teach the vector system. The Examiner also stated that neither references disclose the specific HIV RT

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enzyme in the yeast two-hybrid system; however, Morris et al. does teach the specific HIV RT enzyme and the functions of the two subunits of RT.

The Examiner then stated that it would have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to combine the teachings of Fields et al., Legrain et al., and Morris et al. to obtain a method of determining complex formation of the HIV RT subunits using the yeast two-hybrid system, because Fields et al. suggest using the system for studying protein interactions (page 246, last paragraph). The Examiner further stated that motivation to use HIV proteins that interact is taught by Luban et al. which teaches the use of retroviral gag polyproteins. The Examiner also stated that motivation to determine inhibitors of HIV protein-protein interaction in a yeast two-hybrid system is disclosed in Fritz et al. (U.S. Patent No. 5,922,856, column 10, last paragraph).

In response, applicants respectfully traverse the Examiner's rejection.

Specifically, applicants note that the cited references do not teach all the elements of the claimed invention. The cited references in combination do not teach a yeast cell which comprises (i) a first plasmid which expresses a fusion protein comprising a p66 subunit polypeptide of HIV-1 reverse transcriptase, (ii) a second plasmid which expresses a fusion protein comprising a p51 subunit polypeptide of HIV-1 reverse transcriptase, and (iii) a reporter gene which is activated in the presence of a complex between the first p66 subunit polypeptide and the p51 subunit

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polypeptide, as recited in claim 4.

In addition, applicants assert that the cited references fail to create a motive to combine the disclosures. Specifically, the Examiner cites Luban et al. as providing motivation to use HIV proteins. As the Examiner states, Luban et al. teaches HIV gag polyproteins. Applicants note that the gag proteins are distinct from the HIV-1 reverse transcriptase subunits, which are internal enzyme subunits, recited in the claimed invention. Moreover, Luban et al. does not teach HIV-1 reverse transcriptase subunits. Thus, Luban et al., in combination with the other cited references, does not provide motivation to use HIV-1 reverse transcriptase subunits, nor specifically p66 and p51 subunits, in a two plasmid yeast two hybrid system as in the claimed invention. Furthermore, applicants note that Col 10, last paragraph of Fritz et al., as cited by the Examiner, exclusively refers to inhibition of hRIP (human Rev interacting protein) and does not teach or suggest inhibition of other HIV proteins, and not specific proteins such as HIV-1 reverse transcriptase as recited in the claimed invention.

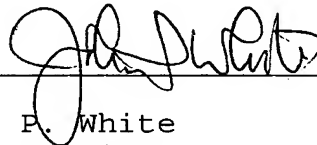
In view of the preceding remarks, applicants maintain that the rejected claims satisfy the provisions of 35 U.S.C. §103(a).

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicants' undersigned attorney invites the Examiner to telephone him at the number provided below.

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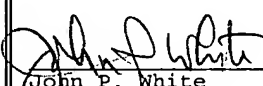
No fee, apart from the total enclosed fee of \$744.00, including \$465.00 fee for a three month extension of time and \$279.00 claim fees, is deemed necessary in connection with the filing of this Communication. If any other fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited this date with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450



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9/25/03
Date